

IN THE CLAIMS:

1. **(Previously Presented)** Method of producing phosphoric acid, comprising

- at least one phosphate ore attack with a first aqueous solution of hydrochloric acid having an HCl concentration of no more than 10% by weight, with the formation of an attack liquor, said attack comprising a dissolving of the phosphate of the ore in said first aqueous solution of hydrochloric acid with a yield of attack greater than 80% by weight, expressed as  $P_2O_5$ , the obtained attack liquor containing this dissolved phosphate in the form of phosphate ions,

- a first separation, in the attack liquor, between an insoluble solid phase containing impurities and a separated aqueous phase comprising in solution said phosphate ions, chloride ions and calcium ions,

- a neutralisation of the said aqueous phase separated from the attack liquor by the addition of a calcium compound in order to form with the said phosphate ions a calcium phosphate insoluble in water, which precipitates,

- a second separation, in the said neutralised aqueous phase, between an aqueous phase comprising in solution calcium ions and chloride ions and a precipitated solid phase based on the said calcium phosphate insoluble in water, and

- a solubilisation of at least part of the said precipitated solid phase separated, in a second aqueous solution of hydrochloric acid having a HCl concentration greater than that of said first aqueous solution of hydrochloric acid, with the formation of an aqueous solution containing phosphate ions, chloride ions and calcium ions,

- an extraction of said aqueous solution containing phosphate ions, chloride ions and calcium ions by an organic extraction agent, in order to form an aqueous extraction phase comprising chloride ions and calcium ions and an organic extraction phase containing phosphoric acid; and

- a re-extraction of the organic extraction phase by an aqueous re-extraction agent, in order to isolate an aqueous re-extraction phase containing phosphate ions.

2. **(Previously Presented)** Method according to claim 1, characterised in that the said first aqueous solution of hydrochloric acid has an HCl concentration of 3% to 6% by weight.

3. **(Previously Presented)** Method according to claim 1, characterised in that, in the attack liquor, the molar ratio between HCl and Ca is between 0.6 and 1.3.

4. **(Previously Presented)** Method according to claim 1, characterised in that the attack step is performed at ambient temperature.

5. **(Previously Presented)** Method according to claim 1, characterised in that the calcium compound of the neutralisation step is chosen from amongst the group consisting of calcium hydroxide, calcium oxide and water-soluble calcium salts, and in that the calcium phosphate insoluble in water is calcium monohydrogenophosphate (DCP).

6. **(Previously Presented)** Method according to claim 1, characterised in that the said separated precipitated solid phase, based on the said insoluble calcium phosphate, has a concentration of 40% to 50% by weight  $P_2O_5$  and 25% to 28% Ca.

7. **(Previously Presented)** Method according to claim 1, characterised in that the said second aqueous solution of hydrochloric acid has an HCl concentration of between 15% and 20% by weight.

8. **(Previously Presented)** Method according to claim 1, characterised in that the said solubilised aqueous solution, to be extracted, has a  $P_2O_5$  concentration of 8% to 15% by weight.

9. **(Previously Presented)** Method according to claim 1, characterised in that it also comprises, after the said extraction, washing of the organic extraction phase by a fraction of the aqueous re-extraction phase, in order to eliminate from the organic extraction phase a hydrochloric acid and calcium chloride content entrained by it and any impurities still present.

10. **(Previously Presented)** Method according to claim 1, characterised in that it also comprises a steam entrainment of traces of

organic extraction agent from the aqueous extraction phase containing chlorine ions and calcium ions.

11. **(Previously Presented)** Method according to claim 9, characterised in that the aqueous re-extraction phase containing phosphate ions has a  $P_2O_5$  concentration of 15% and 25% by weight.

12. **(Previously Presented)** Method according to claim 1, characterised in that the phosphate ore has a coarse grain size between 150 and 500  $\mu m$ , and a  $P_2O_5$  content of 15% to 38% by weight.

13. **(Previously Presented)** Method according to claim 1, characterised in that it also comprises a treatment of the said aqueous phase issuing from the second separation, containing in solution calcium ions and chloride ions, by means of an aqueous solution of sulphuric acid with the formation of insoluble calcium sulphate, which precipitates, and an aqueous phase based on hydrochloric acid, an isolation of the calcium sulphate precipitate and an at least partial recycling of the aqueous phase based on hydrochloric acid in order to form the said first and/or second aqueous solution of hydrochloric acid.

14. **(Previously Presented)** Method of preparing a phosphoric acid salt, comprising

- at least one attack on phosphate ore by an aqueous solution of hydrochloric acid having a HCl concentration of no more than 10% by weight, with the formation of an attack liquor, said attack comprising a dissolving of the phosphate of the ore in said aqueous solution of

hydrochloric acid, with a yield of attack greater than 80% by weight, expressed as  $P_2O_5$ , the obtained attack liquor containing this dissolved phosphate in the form of phosphate ions,

- a first separation, in the attack liquor, between an insoluble solid phase containing impurities and separated aqueous phase, containing in solution said phosphate ions, chloride ions and calcium ions,

- a neutralisation of the said separated aqueous phase by the addition of a calcium compound in order to form, with phosphate ions contained in this aqueous phase, a calcium phosphate insoluble in water, which precipitates, and

- a second separation, in the said neutralised aqueous phase, between a liquid phase and a precipitated solid phase based on the said calcium phosphate insoluble in water.

15. **(Previously Presented)** Method according to claim 14, characterised in that the said aqueous solution of hydrochloric acid has an HCl concentration of 3% to 6% by weight.

16. **(Previously Presented)** Method according to claim 14, characterised in that, in the said attack liquor, the molar ratio between HCl and Ca is between 0.6 and 1.3.

17. **(Previously Presented)** Method according to claim 14, characterised in that the attack step is performed at ambient temperature.

18. **(Previously Presented)** Method according to claim 14, characterised in that the calcium compound of the neutralisation step is chosen from amongst a group consisting of calcium hydroxide, calcium oxide and water-soluble calcium salts, and in that the calcium phosphate insoluble in water is calcium monohydrogenophosphate (DCP).

19. **(Previously Presented)** Method according to claim 14, characterised in that the said separated precipitated solid phase, based on the said calcium phosphate insoluble in water, has a concentration of 40% to 50% by weight  $P_2O_5$  and 25% to 28% Ca.

20. **(Previously Presented)** Method according to claim 14, characterised in that it also comprises a treatment of the said liquid phase issuing from the second separation and containing calcium ions and chloride ions in solution, by means of an aqueous solution of sulphuric acid with the formation of insoluble calcium sulphate, which precipitates, and an aqueous phase based on hydrochloric acid, an isolation of the calcium sulphate precipitate and an at least partial recycling of the aqueous phase based on hydrochloric acid in order to form the said aqueous solution of hydrochloric acid.

21. **(Cancel)**.

22. **(Canceled)**.

23.-26. **(Cancel)**.

27. **(Previously Presented)** Method according to claim 1,  
further comprising a concentrating of the aqueous re-extraction phase in  
order to form an aqueous solution of pure phosphoric acid.

28. **(Cancel)**.